

REMARKS

Claims 23 through 30 are currently pending in the application.

Claims 31 and 32 have been canceled in this amendment.

Claims 23, 25 and 27 have been amended

This amendment is in response to the final Office Action of November 4, 2003 and the Advisory Action of January 28, 2004.

Information Disclosure Statement(s)

Applicant notes the filing of an Information Disclosure Statement herein on October 27, 2003 and notes that a copy of the PTO-1449 was not returned with the outstanding Office Action. Applicant respectfully requests that the information cited on the PTO-1449 be made of record herein.

35 U.S.C. § 103(a) Rejections

Obviousness Rejection Based on Bol (U.S. Patent 5,269,877) in view of Yeh et al. (U.S. Patent 4,400,866) in further view of Brodie (U.S. Patent 5,063,327)

Claims 23 through 32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bol (U.S. Patent 5,269,877) in view of Yeh et al. (U.S. Patent 4,400,866) in further view of Brodie (U.S. Patent 5,063,327). Applicant respectfully traverses this rejection, as hereinafter set forth.

Applicant submits that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure.

After carefully considering the cited prior art, the rejections, and the Examiner's

comments, Applicant has amended the claimed invention to clearly distinguish over the cited prior art.

Applicant asserts that any combination of the Bol reference, the Yeh et al. reference and the Brodie reference does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the embodiments of the presently claimed inventions as set forth in presently amended independent claim

Applicant asserts that the proposed combination of the cited prior art does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed inventions of presently amended independent claims 23, 25, and 27 because there is no suggestion for any combination thereof of such cited prior art, there has been no showing of success for any combination of such cited prior art, the proposed combination of the cited prior art does not teach or suggest all the claim limitations of the presently claimed inventions of presently amended independent claims 23, 25, and 27, and any rejection of the presently claimed inventions of presently amended independent claims 23, 25, and 27 would be a hindsight reconstruction of the presently claimed invention based solely upon Applicants' disclosure, not the cited prior art.

Applicant asserts that the cited prior art contains no suggestion whatsoever for any combination thereof to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed inventions of presently amended independent claims 23, 25, and 27. Applicant respectfully submits that Bol and Yeh cannot be used in a 35 U.S.C. 103 rejection because they are not analogous art and teach away from any combination thereof to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed invention. Applicant asserts that "To rely on a reference under 35 U.S.C. 103, it must be analogous prior art." MPEP 2141.01 (a). More specifically, "[i]n order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of the applicant's endeavor, or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. *Id.*

Bol teaches or suggests a process which "relates generally to field emission structures" and methods of making them. Uses of the emitter tips taught in Bol are as vacuum microtube

components. Col 1, lines 1 through 15. Yeh, on the other hand, teaches the construction of semiconductor devices, and in particular, a “high speed, VLSI self-aligned, Schottky Metal Semiconductor Field Effect Transistor. Col. 1, lines 45 through 50. The two references are decidedly in different fields.

Furthermore, Yeh, is not “reasonably pertinent to the particular problem with which the inventor was concerned.” To further clarify, the MPEP continues further: “[a] reference is reasonably pertinent if, even though it may be in a different field from that of the inventor’s endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem.” *Id.*

Applicants respectfully submit that Yeh would not logically have commended itself to the inventor trying to invent an improved method of forming an emitter structure. There is a complete lack of relevant similarities between Yeh and the task being addressed. Furthermore, even if the use of oxidation on a substrate is deemed a relevant similarity (i.e., even if the inventor had made the decision to use an oxidation process to form the cone-shaped emitter tip), Yeh would not have logically commended itself because it only teaches or suggests that differential relative doping levels between two layers results in differences in oxide thickness growth rate when the layers are subjected to oxidizers. Furthermore, the oxide layers are not removed in Yeh, but instead remain in place and fulfill an essential function. Col 4, lines 4 through 21. In short, Yeh teaches or suggests a process very different than the removal or shaping of a substrate by oxidation, followed by oxide removal.

Applicant thus respectfully submits that Bol and Yeh are improperly combined, and as a result, claims that contain limitations attributed to both Bol and Yeh are not taught or suggested by the references as combined in the Office Action and cannot establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed invention. In particular, claims which require a surface or substrate comprising semiconductive material or is at least semiconductive, allegedly taught by Yeh, such as independent claim 25, are respectfully deemed allowable. Applicant has thus amended independent claims 23, 27 and 31 to contain such a limitation. Support for the amendment can be found in Figure 1, which, along with the field emitter display of claim 25, also shows a pixel (claim 23) 22. Display panels (claim 27) and

cathode conductor systems (claim 31) are clear extensions of the inventive process that are contemplated in the final paragraph of page 9 of the specification. Applicant respectfully submits that claims 23, 25, 27 and 31 are allowable, and 24, 26, 28 through 30 and 32 are allowable as depending from allowable independent claims.

Additionally, Applicant asserts that there has been no showing of success for any combination of the cited prior art except based solely upon Applicant's disclosure. Such is clearly evident since the Applicant asserts that there has been no showing of success for any combination of the cited prior art except based solely upon Applicant's disclosure. Such is clearly evident since the eh et al. reference is not even directed to a field emission structure. As such, the only suggestion for any combination thereof is solely Applicant's disclosure. Additionally, no showing of success for any combination of the cited prior art is possible for the presently claimed inventions of presently amended independent claims 23, 25, and 27 because solely Applicant's disclosure suggests such claim limitations.

Accordingly, no combination of the cited prior art can establish a showing of success to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed invention of presently amended independent claims 23, 25, and 27.

Further, Applicant asserts that any combination of the cited prior art does not teach or suggest all the claim limitations of the presently claimed inventions of presently amended independent claims 23, 25, and 27 to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed invention. For instance, Applicant asserts that any combination of the cited prior art fails to teach or suggest the claim limitations of the presently claimed inventions of presently amended independent claims 23, 25, and 27 calling for "a single-layered substrate further comprising . . . a generally planar surface having an upper surface comprising semiconductive material having an impurity concentration the greatest at the upper surface of the generally planar surface", "at least one protuberance formed from said generally planar surface", "an impurity offset from said generally planar surface and within said protuberance, said impurity within said protuberance has a concentration decreasing concurrently with a distance from the upper surface of said generally planar surface", "a remaining portion of a single-layered substrate, the remaining portion being an uncontaminated single-layered

substrate that is at least semiconductive formed from a single-layered substrate having an upper surface, the single-layered substrate having an impurity concentration greatest at the upper surface while decreasing with a distance from the upper surface”, “a micro-cathode on said substrate formed from the portion of the single-layered substrate having an impurity concentration greatest at the upper surface thereof, further comprising . . . a contaminated apex having an impurity concentration substantially the same as portion of the single-layered substrate at the upper surface thereof”, “a decreasingly contaminated body, the concentrate of the impurity decreasing from the contaminated apex”, “a generally uncontaminated substrate comprising semiconductive material formed from a single-layered substrate having an upper surface, the single-layered substrate having an impurity concentration greatest at the upper surface while decreasing with a distance from the upper surface”, and “an emitter electrode on said substrate, further comprising an apex having an impurity concentration substantially the same as portion of the single-layered substrate at the upper surface thereof, and further having an etch-resistible quality that increases with depth from said apex”.

In contrast to the claim limitations of the presently claimed inventions of presently amended independent claims 23, 25, and 27, the Bol reference clearly teaches or suggests forming the apex of any emitter from the highly contaminated middle of the semiconductor layer, not the highly contaminated or doped surface of the single-layer semiconductor material as is required by the presently claimed inventions. The surface of the semiconductor layer in the Bol reference is free of contaminants or dopants. Therefore, the Bol reference teaches away from the presently claimed inventions.

Accordingly, presently amended independent claims 23, 25, and 27 are allowable as well as the dependent claims therefrom.

Finally, Applicant asserts that any rejection of the presently amended independent claims based upon the combination of the cited prior art would be a hindsight reconstruction of the presently claimed inventions based solely upon the Applicant’s disclosure, not the cited prior art which is required to establish a *prima facie* case of obviousness under 35 U.S.C. § 103. Since the cited prior art does not contain any suggestion for any combination thereof or teach or suggest all the claim limitations of the presently claimed inventions of presently amended independent

claims 23, 25, and 27, solely Applicant's disclosure would be the only such suggestion for any such claim limitations. Such a rejection is neither within the ambit nor the purview of 35 U.S.C. § 103 and, clearly, improper. Accordingly, presently amended independent claims 23, 25, and 27 are clearly allowable as well as the dependent claims therefrom.

In summary, Applicant submits that claims 23 through 30 are clearly allowable over the cited prior art for the reasons set forth hereinabove.

Applicant requests the allowance of claims 23 through 30 and the case passed for issue.

Respectfully submitted,



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Date: February 3, 2004

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